

17. An optical system according to claim 13, wherein said optical element corrects chromatic aberration in said lens system.

18. (Amended) An optical system, comprising: a diffractive optical element according to any one of claims 2-7, 9, 10 and 20-22; and a lens system, wherein each of said pair of diffractive gratings comprises a flat surface, and a length a of said flat surface in a direction of grating arrangement of each diffractive grating is $0.5 \mu\text{m} < a < 2 \mu\text{m}$.

19. (Amended) An optical system, comprising: a diffractive optical element according to any one of claims 2-7, 9, 10 and 20-22; and a lens system, wherein each of said pair of diffractive gratings comprises a curved surface, and a radius of curvature r of said curved surface on a cross sectional plane including a direction of grating arrangement of each diffractive grating is $0.5 \mu\text{m} < r < 2 \mu\text{m}$.

REMARKS

Claims 1-7 and 9-19 remain pending in this application, with Claims 1-7 and 9-12 being independent. By this Amendment, Applicant has amended the specification and Claims 18 and 19. No new matter has been added.

Initially, Applicant would like to thank the Examiner for extending the courtesy of conducting a personal interview with Applicant's attorney on July 17, 2001. During the interview, Applicant's attorney discussed with the Examiner the outstanding rejections. Specifically, Claims 18 and 19 stand rejected under 35 U.S.C. § 112, second paragraph; Claims 1-7 and 9-19 stand rejected under 35 U.S.C. § 112, first paragraph; Claims 1, 11 and 12 stand rejected under 35 U.S.C. § 103 over U.S. Patent No. 5,048,925 (Gerritsen, et al.); and Claims 2-7, 9, 10 and 13 stand rejected under 35 U.S.C. § 103 over the Gerritsen, et al. patent in view of U.S. Patent No. 5,279,924 (Sakai, et al.). The Office Action also indicates that the Amendment filed on November 3, 2000, stands objected to under 35 U.S.C. § 132.

It was agreed at the interview that the amendments to Claims 18 and 19 presented herein would overcome the rejection under 35 U.S.C. § 112, second paragraph. Accordingly, Applicant requests withdrawal thereof.


It was also agreed that the rejection under 35 U.S.C. § 112, first paragraph, and objection under 35 U.S.C. § 132, would be withdrawn in view of the change to the specification presented herein. The amendments to the specification merely clarify that which was originally presented in the disclosure. Accordingly, Applicant also requests withdrawal of the rejection under 35 U.S.C. § 112, first paragraph, and objection under 35 U.S.C. § 132.

It was also discussed during the interview that the Gerritsen, et al. and Sakai, et al. patents fail to describe or suggest that the maximum optical path length difference occurring in a pair of diffractive gratings with respect to each of at least two wavelengths is m (integer) times the wavelength, and the values of m in the two

wavelengths are the same. The Examiner tentatively agreed that those patents did not specifically describe the discussed feature, but indicated that a full search and examination of that feature will have to be performed in view of the withdrawal of the rejections under 35 U.S.C. § 112, first paragraph. Accordingly, Applicant requests favorable reconsideration of the claims and early passage to issue of this application.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



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**VERSIONS WITH MARKINGS TO SHOW
CHANGES MADE TO THE SPECIFICATION**

Please amend the paragraph starting at page 15, line 15, and ending at line 18, as follows.

--where n_0 is the refractive index for the design wavelength λ_0 of the material of the diffraction grating 3, and varies depending on the associated wavelength, d is the grating thickness, and m is the diffraction order.--

Please amend the paragraph starting at page 16, line 7, and ending at line 12, as follows.

--where n_{01} and n_{02} (which also vary depending on the particular wavelength) are the refractive indices for the wavelength λ_0 of the materials of the first and second layers 4 and 5, respectively, and d_1 and d_2 are the grating thicknesses of the first and second diffraction gratings (the first and second layers) 4 and 5, respectively.--

**VERSIONS WITH MARKINGS TO SHOW
CHANGES MADE TO CLAIMS 18 AND 19**

18. (Amended) An optical system, comprising: a diffractive optical element according to any one of claims 2-7, [9 and 10] 9, 10 and 20-22; and a lens system, wherein each [of said portions,] of said pair of diffractive gratings[, formed in the chamfered shape] comprises a flat surface, and a length a of said flat surface in a direction of grating arrangement of [said] each diffractive grating is $0.5 \mu\text{m} < a < 2 \mu\text{m}$.

19. (Amended) An optical system, comprising: a diffractive optical element according to any one of claims 2-7, [9 and 10] 9, 10 and 20-22; and a lens system, wherein each of [said portions, of] said pair of diffractive gratings[, formed in the chamfered shape] comprises a curved surface, and a radius of curvature r of said curved surface on a cross sectional plane including a direction of grating arrangement of [the] each diffractive grating is $0.5 \mu\text{m} < r < 2 \mu\text{m}$.

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